

THE MISSING MINORITY PRESENCE- MINORITIES, TECHNOLOGY, AND
RECRUITMENT TO TOP RANKED AMERICAN LIBRARY ASSOCIATION
INFORMATION AND LIBRARY SCIENCE PROGRAMS.

by
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A Master's paper submitted to the faculty
of the School of Information and Library Science
of the University of North Carolina at Chapel Hill
in partial fulfillment of the requirements
for the degree of Master of Science in
Information Science.

Chapel Hill, North Carolina

April, 2002

Approved by:

Advisor

Linwood Webster. The Missing Minority Presence- Minorities, Technology, and Recruitment to Top Ranked American Library Association Information and Library Science Programs. A Master's paper for the M.S. in I. S. degree. April, 2002. 51 pages. Advisor: Evelyn H. Daniel

This study documents the importance of recruitment efforts to provide a stronger presence of minority students in the library and information science profession and library and information science programs in top-ranked American Library Association (ALA) programs. Using a career choice model an instrument was developed to survey minority students at graduate and professional school fairs at five historically black colleges and universities (HBCUs) to determine their awareness, knowledge, and interest in information technology and other factors impacting their decisions when deciding on a particular graduate program to attend. Results showed that increased familiarity and awareness of careers in information technology with knowledge of opportunities at library and information science programs can lead to greater numbers for minority students selecting the field.

Headings:

Black librarians

Information Technology

Information Industry

Recruiting for librarianship

Library schools -- Students

Minority librarians -- Education

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A Missing Minority Presence

Are Minorities In Pursuit of Advanced Degrees?

The higher education community acknowledges it needs to increase efforts to ensure that more minority youths and adults are adequately prepared for college, as well as share in the opportunities enabled through higher education. Both our national economy and our nation's classrooms have much to gain from greater diversity among our undergraduates. Minority undergraduate students of the new millennium are faced with career decisions as they pursue and complete their undergraduate degrees. Students in today's technology-rich higher education environment have unprecedented opportunities to use and integrate the new technology tools and electronically accessed information resources into their academic studies. Regrettably, many minority students are entering higher education without the skills and experience necessary to use most information technology (IT) tools and resources immediately and effectively. This lack of skills becomes an additional barrier for minority students (in addition to the fiscal, cultural, and educational barriers that they are already confronting as minority students) when competing academically.

In today's ever-changing, exciting, and unpredictable job market there are some areas for employment where opportunities for minorities are in relatively high demand.

For at least one field, minority students continue to be a noticeably missing presence.

The Library and Information Science (LIS) field, and the information industry-one of the fastest growing sectors of the economy- need more graduates and they need more minority participants in particular. As more and more information is produced, information professionals and information specialists are needed to make sure the information is made readily accessible to all. The LIS field offers careers in libraries, with database producers and vendors, as information consultants or brokers, and as systems analysts for business and industry. Opportunities exist but it does not appear that minorities are filling the proportionate number of open slots. For example, statistics show that minority students make up only 11% of all students entering Masters degree programs in LIS (ALISE, 2001). The LIS education path and fields expose individuals to emerging technology, provide the technical knowledge, skills and training, knowledge of the economic world of technology, and preparation to succeed in this era of rapid technological advancement.

While jobs in the private sector tend to have higher salaries, educating minorities for public service in the immediate future is also important. Minorities who possess graduate degrees in LIS have the opportunity to become managers of multicultural public service agencies, for example, libraries that serve ethnically diverse populations. The library and information science profession has a strong need and desire to respond to the demographic changes within our society. Recruiting, educating, and graduating minorities with LIS degrees offers a welcomed response.

Possessing a graduate degree in LIS allows minorities to provide leadership in the development of new technologies and applications relating to information technology. IT skills will enable an individual to use computers, software applications, databases, and other technologies to achieve a wide variety of academic, work-related, and personal goals. Information seeking skills help people to help others find information. A graduate degree, especially in LIS, opens a variety of careers to the minority student, especially for those who are interested in developing and using interpersonal skills. Database producers and vendors, information consultants or brokers, systems analysts or information specialists for business and industry are just a few of the variety of jobs LIS graduates pursue. Whether we call it an information, post-industrial, or service economy, the fact is many of the new jobs in this country are presently and will most likely continue to be in the information, knowledge, and service sectors, in both public and private organizations (Reese and Hawkins, 1999).

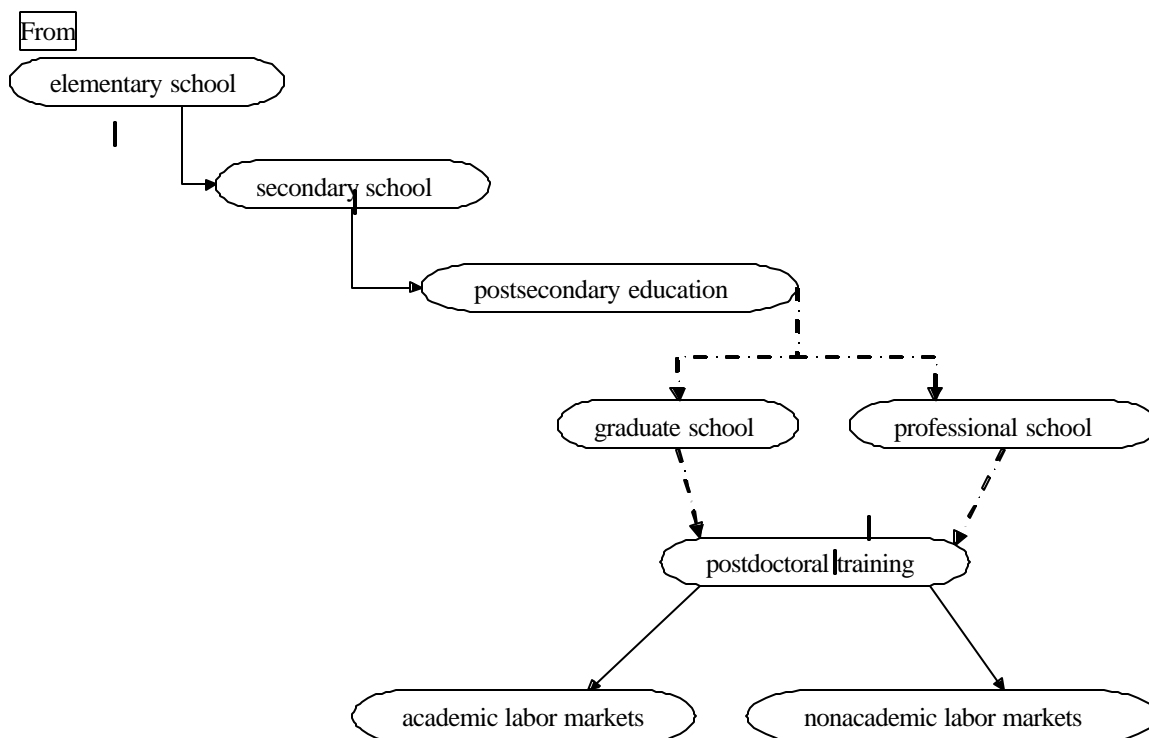
Several questions are relevant to recruitment of minorities to library and information science graduate degree programs: What knowledge of information technology do minority undergraduates have? How might a graduate degree in LIS enhance their future career opportunities? How should this be done and who should do it? Will familiarity with IT or location and reputation of LIS programs increase the number of applications from minority undergraduate students to top-ranked American Library Association (ALA) accredited LIS programs? These and other related questions are the focus of the proposed research in order to better understand what minority undergraduates perceive about IT and about LIS careers.

Literature review

Degree or not degree, that is the question.

Does the Educational Pipeline exist for minority students? The Educational Pipeline (see Figure 1) maps the paths that students typically flow from elementary-secondary school to postsecondary education, to graduate-professional school, to postdoctoral training, and finally into academic or nonacademic labor markets (Braddock, 1992).

Figure 1. Educational Pipeline



The flows are hierarchical and if one level is missed, the opportunity to proceed is blocked. Although a link exists between high school programs and entry into graduate or professional programs, it is unclear exactly how that connection is achieved- through preparation, where actual course content, experiences, and skill requirements in high school are those needed in college; or through expectation, where the same set of expectations or aspirations that lead the student into the more accelerated programs in high school also lead to pursuit of a more rigorous postsecondary choice.

Postsecondary institutions are ranked by school characteristics, such as type (two-year vs. four-year), control (public vs. private), and prestige (e.g., student selectivity), while elementary-secondary schools are also ranked by characteristics, such as location (inner city vs. suburban), selectivity (neighborhood vs. magnet), and student background (e.g., race/ethnicity or social class) (Braddock, 1992).

Losses of students at earlier parts of the pipeline greatly affect the numbers of minority students available later to pursue graduate education. Dropping out, failing to participate in college preparatory academic tracks in high school, or entering postsecondary education through two-year colleges further depresses the number of minority students available to participate in graduate education (Brown, 1992). In a recent North Carolina education report, (NC Department of Public Instruction, 2000) “Increasing Opportunity to Learn via Access to Rigorous Courses and Programs: One Strategy for Closing the Achievement Gap for At-Risk and Ethnic Minority Students

2001,” the College Board reports that 1,752 Black students took at least one Advanced Placement (AP) course in North Carolina out of a total of 21,871 AP students, a mere 7 %. Black students, however comprise approximately 30 % of the state’s total school age population. George and Harrison (as cited in NC Department of Public Instruction, 2000) observe,

High School and college outcomes seem to be strongly related to high school curricula. A special report of *Issues on Higher Education* (Burdman, 2000) examined data from 21 colleges and reported that students who had taken an advanced placement (AP) course in high school significantly outperformed students who had not taken the AP course but had the college-level prerequisite course.

For the most part, there seems to be a flow into graduate education from undergraduate education with little active recruitment by universities. Few people seem to be listening when students offer early signals of interest in pursuing graduate study. While financial support for graduate education is an important factor in who does and does not apply and complete the programs, it is not the only factor. Psychological support in graduate study, including finding a mentor, overcoming earlier deficits in skill development, and finding peers who support one’s choices, may be as important as finances. Other factors include, location of the school with desired program, geographic proximity of program to home, financial aid offered by the particular school, cost of attending graduate program, library and computer lab resources at particular school, general reputation of the graduate program, teaching reputation of faculty at particular

school, research reputation of faculty, diversity of student body, size of classes in particular graduate program, flexible class schedule, availability of part-time program, availability of night & weekend courses, online/distance education courses, opportunity for professional involvement such as conferences and participation in research projects, recommendations from a relative, alumni, current student, or employer, availability of dependent family care assistance, consistency of program content with career goals, salary and job availability upon graduation from the program.

In the ideal case, preparation for a graduate education should begin as soon as pursuit of an undergraduate education is decided upon. In today's society, an undergraduate degree alone is not enough to compete in an overcrowded and ever increasing job market. Obtaining the advanced degree offers minority students the opportunity for consideration when applying for numerous jobs. Although in the past having a high school diploma was sufficient educational background, society and workplace demands required the undergraduate degree, and now the bar has been raised once again to even newer heights- the elusive advanced degree. Elusive because proper precautions and preparation have to be taken in order to insure that minorities do not miss the necessary steps in the educational pipeline and then fail to be considered because of this. There are different stages for properly preparing for a graduate education, especially for minorities. When pursuing the advanced degree, many of the aforementioned factors will undoubtedly shape the process of application and admission. Some will outweigh others; active recruitment by universities could and would overcome many perceived barriers.

According to Teresa Morris (1998) in *African Americans in Library and Information Science Programs: Recruitment Strategies Examined*, recruitment efforts take various shapes and efforts. Some efforts begin at the potential employers' level; some center around campus-based minority recruiting, one targeted way that gets results is personalized recruitment, and offering specialized summer internships or research programs to acquaint minority students with graduate education opportunities. With specialized internships or research programs, getting minority students interested in graduate education at a early point in their education, gives them the opportunity to recognize their potential for a graduate education and the career possibilities with the degree, thus possibly avoiding the pitfalls of missing the next step in the pipeline.

The "leaks" from the pipeline are most severe when students move from one sector to another, e.g. elementary to secondary to postsecondary. The most obvious helpful intervention would be to smooth out the transition between levels. For example, one might consider admitting able students to college as early as their junior year in high school and allowing them to take courses that can be counted both for college and high school credit. Bard High School Early College in New York City is an example of such offerings (*Early College Backgrounder*, n.d.). This early college high school allows students to graduate with a diploma and an associate's degree, for two years of college credit. The program consists of a small, personalized learning environment that demands rigorous, high-quality work and provides students with extensive support systems. On the other hand, one can argue that students who are less prepared academically or less

mature might benefit from additional years of pre-college work and/or continue on for the undergraduate and maybe even advanced degrees.

A recent study by the American Association for the Advancement of Science (as cited in Jones, *et al*, 1992) focused on programs, practices, and policies in colleges and universities that support education in science and engineering for students from underrepresented groups. The researchers found that the concept of “retention rate” was foreign to discussions of graduate education. Little attention was paid to non-completers, as though it was assumed that some people would leave before finishing. Having a student leave a program does not necessarily mean that the student has failed the program, nor does it suggest that the program has failed the student, rather it may be a case of poor fit. Mechanisms should exist to help find programs that will fit and nurture the minority student the first time around or to ensure the student transfers to a program which is a better fit.

Unfortunately, in looking at these issues of fit, minority students and university administrators often fail to separate personal and program effects. For a minority student to pass successfully through the system, the student must not only fit the school and fit the field, but must also fit the field as it is presented in the department and embedded within the institution. As long as the responsibility and burden for fit remains with the student, the process is driven by a selectivity strategy. With this responsibility, the students’ selectivity strategy may include selecting a program that has a large minority enrollment, may select a typical or expected program that minority students usually

select, may select a short, quick or non-challenging program, or may even select a program at their undergraduate institution because of familiarity with campus, departments, or faculty members. Universities interested in recruiting and attracting minority students have to enter the process at a high level of visibility and attractiveness so the minority student feels that there is a legitimate possibility of a fit to their graduate programs.

Efforts to increase graduate school attendance for minorities should examine whether minority students are participating in the necessary activities that prepares them. One such activity, preparing for and taking admissions examinations, has the potential to create higher aspirations for graduate education. On the other hand, the role of the Graduate Record Examination (GRE) or any admissions examination in such a setting will generally be that of exclusion, that is, looking for reasons to rule out particular applicants. The strategy appears to be to find students who look sufficiently similar to those currently in the system and eliminate the rest from consideration. Tests can indicate where students may not be academically matched to pursue graduate education at an institution. This does not mean however, that the students are academically incapable of pursuing such work. Closing the racial gap in participation in challenging secondary curricula may constitute an important yet viable mechanism for closing the ethnic gap on achievement test scores.

One factor that distinguishes successful from unsuccessful students is that students who are experienced and comfortable in using computers are able to take full

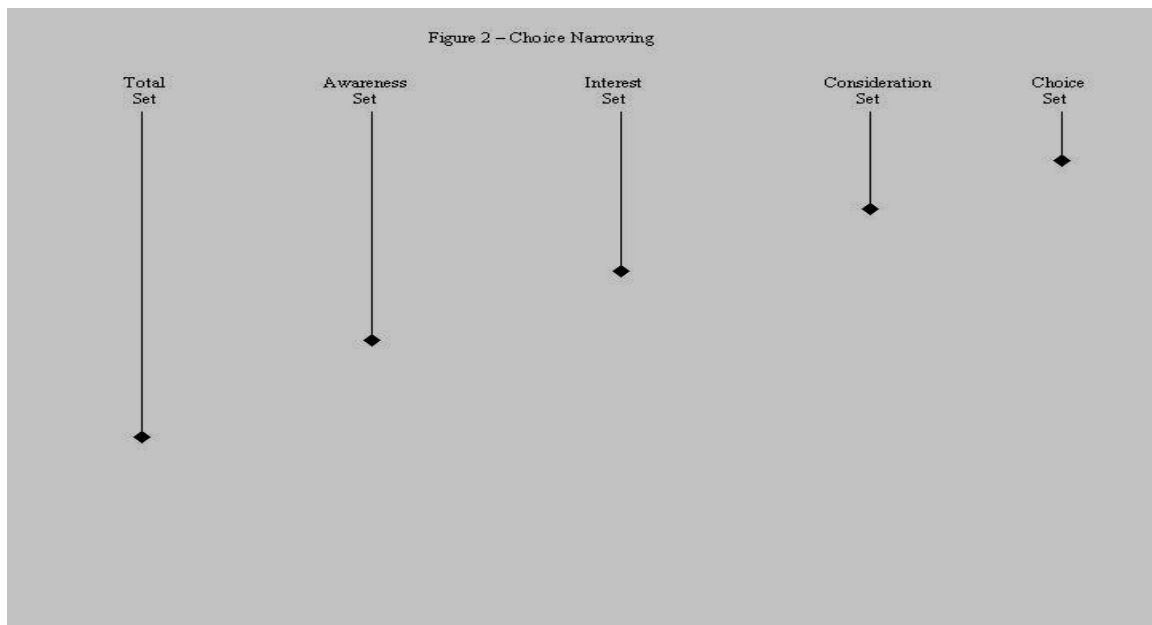
advantage of the new technologies in pursuing their academic studies and generally do better. On the other hand, students entering college who are unfamiliar with these tools often find it increasingly difficult to compete with their peers. Based on results of the National Assessment of Educational Progress (as cited in Justiz, *et.al*, 1994), a disproportionate percentage of minority students entering higher education today are not equipped with the skills and knowledge to use the new information and communication technologies to enrich and support their academic studies. This problem stems in part from the inequities in access to and use of technology. If the present trend is not reversed, these students are in danger of becoming a new class of information-disadvantaged students.

Career Planning

A significant number of factors influence choices of career, college, and life planning for minorities. Setting priorities and goals for career planning, deciding whether or not to attend college, developing ultimate life designs, and setting long-range and short-term goals are major choice decisions (Zeithaml and Bitner, 2000). In all of these planning choices, values, interests, abilities, achievement, and work-life experiences are viable factors to discuss, evaluate, and clarify when making decisions. Differences in work values and interests combined with limited access to occupational information make the career choice process more difficult for minorities. For example, the selection of a particular college to attend, “choice narrowing”, can be a complicated process

(Zeithaml and Bitner, 2000). Should a minority student choose academic fit over cultural conformity and a need to fill an identity deficiency?

Figure 2. Choice Narrowing



As figure 2 depicts, career choices can be conceptualized as a series of sets. The “total set” is the largest. Each movement to the right reduces the number in the set. The minority student, as do other students, starts with a “total set” of colleges. If the awareness set is substantially less than the total set, some possibilities may not even be considered. For example, the minority student may or may not include predominantly white institutions; it may also include one or more historically black colleges and universities (HBCUs). If the predominantly white institution has not “recruited” the minority student, by way of college advertisements, brochures, posters, magazine articles or college fairs, the minority student may not consider these institutions as part of his/her “awareness set.” As the “awareness set” is developed, the predominantly white

institutions may be omitted if their recruitment efforts have failed to reach the minority student. As the minority student develops his/her “interest set” and then determines his/her “consideration set,” other colleges are no longer on the list. As additional information is gathered, such as scholarship and financial aid information, the “choice set” is determined and formed (Zunker, 1998). The final step involves evaluating the colleges in the choice set and making the final decision on which undergraduate/graduate school to attend. If more predominantly white institutions want to attract minority students to their programs, they must act to assure they are included in the awareness, interest, consideration, and choice sets.

New technology, automation, computer science, and increased specialization have brought about numerous changes in occupational structure and job demand in the last three decades. Career choice is an expression of one’s personality. Members of an occupation usually have similar personalities and similar histories. Holland (1985) poses a typology of individuals comprising six personality types:

Realistic- likely to enjoy using tools or machines in their hobbies or work.

Investigative- likely to enjoy puzzles and challenges that require the use of intellect.

Artistic- likes the opportunity to express self in a free and unsystematic way, such as creating music, art, or writing.

Social- interested in helping people through teaching, helping with personal or vocational problems, or providing personal services.

Enterprising- likes to use verbal skills in order to sell, persuade, or lead. Also, enjoys working with people, but prefers to persuade and manage rather than to help.

Conventional- values money, being dependable, and the ability to follow rules and orders.

Types develop, according to Holland (as cited in Sharf, 1992) as a “product of a characteristic interaction among a variety of cultural and personal forces including peers, biological heredity, parents, social class, culture, and the physical environment” (p. 44). These factors lead to an individual’s preferring some activities over others. Preferences then develop into strong interests. Interests then lead to the development of related competencies. An individual’s interests in conjunction with his or her competencies form a specific “disposition” that allows the individual to “think, perceive, and act in special ways” (p 44).

Mitchell and Krumboltz (as cited in Zunker, 1998) outline four factors that influence an individual’s career path. The first is the individual’s innate genetic endowment and any special abilities that may have been inherited. Learning experiences clearly interact with innate abilities in such a way that an individual has varying opportunities to develop those abilities and to overcome barriers created by innate genetic endowment. When speaking about this particular factor, artistic, athletic, and entertainment areas come to mind. These areas contain visible minority presence. This presence helps to offer minorities role models to imitate. The role models exhibit a

rewarding economic lifestyle thus, the path to obtaining an education and perhaps that illusive advanced degree does not seem as attractive, especially when there are not an abundance of minority teachers in academe acting as role models and suggested alternative paths to success.

The second factor influencing career paths involves environmental conditions and events. Environmental events are often outside the control of the individual and may or may not be planned. Mitchell and Krumboltz (as cited in Zunker, 1998) list 12 categories of environmental conditions: job opportunities, social policies such as affirmative action, rewards for choosing some occupations, labor laws, physical events, natural resources, technological developments, changes in social organizations, family training and resources, educational system, and neighborhood and community influences. The environmental factor offers the strongest influence on minorities when making a career choice. It has long and often been said that one is usually a product of one's environment. To break such a cycle takes a focused and determined individual. In this day and age, neighborhood and community influences offer the first exposure to potential role models and mentors. Family training and resources shape the educational path a minority may select and occur prior to the process of obtaining college loans or other financial means to pay for a college education. Peer pressure may also help in shaping the career paths of minorities. Surrounding minorities with positive events and people during their adolescence years will reinforce the benefits of choosing a successful career path, one that usually involves some sort of education beyond high school.

The third and most central factor in selecting a career path has to do with learning experiences. Learning experiences may be either instrumental or associative.

Instrumental learning includes antecedents, behaviors, and consequences. Antecedents include genetic endowment and environmental conditions; behaviors may be covert or overt; and consequences may be immediate or delayed. Associative learning occurs when two stimuli are paired, such as a distinctive taste of a food paired with subsequent nausea results in aversion to that food, the negative consequence is associated with the behavior. In considering how this factor helps in the shaping of career paths for minorities, positive reinforcement during the early segments of the educational pipeline encourages individuals, minorities especially, to experiment more with learning and to associate positive results with additional schooling thus can have a lasting impact.

The final factor in career decision making is “task approach skills”, resulting from an interaction of innate abilities, environmental conditions, and learning experiences (Mitchell and Krumboltz, 1996). Task approach skills are those skills that individuals bring to a task, such as their expectations of performance, work habits, cognitive process, and emotional responses. When minority students consider this final factor, they may realize that the interaction between the person and the environment shapes their career choice and adjustment process, this realization that opportunities for obtaining a college education are possible may lead to a decision to pursue an advanced degree because it will be perceived as within reach.

Minority Participation in Higher Education

African-American participation in higher education in America's majority institutions, in any substantial numbers, is a relatively recent phenomenon. The U.S. National Center for Education Statistics did not report the numbers of black high school graduates or the percent enrolled in college until 1980. In 1999, the latest date for which statistics are available, the report shows 453,00 Black high school graduates with 59.2% enrolled in college this compares to 361,000 graduates of high school in 1980 with only 41.8% going to college (U.S. Census Bureau, 2001). As recently as two and a half decades ago the majority of African-Americans in college were in historically black colleges and universities. HBCUs played a unique role in the education of African-Americans that had not been experienced by any other ethnic group. HBCUs have for over 135 years provided higher education access for the overwhelming majority of African-Americans (Wilson 1987). Wilson reports that 177,000 African-Americans enrolled in HBCUs in 1982 and 851,000 in predominately white institutions (PWI). Ten years later the comparable figures are 225,000 in HBCUs and 1,168,000 in PWIs, showing very little change in the three-decade period. Data from the U.S. Census of Population reported by the U.S. Census Bureau (2001, Table 216), shows a percentage increase in the report of black males who are graduates of college from 2.8% in 1960 to 16.3% in 2000) although the numbers and proportions continue to lag those of white males significantly.

Two revolutions in federal initiatives, Supreme Court actions, and congressional laws have given considerable impetus to African Americans and other minorities to pursue higher education. Participation in higher education dramatically changed both the number of minorities and their geographic distribution throughout American higher education institutions. The first revolution occurred with the passage of the first GI bill for educational purposes. Originally the Servicemen's Readjustment Act of 1944, the GI Bill of Rights provided veterans with funds for college tuition and other educational costs. This increased enrollment helped colleges expand their programs to include practical course work like business and engineering. The bill was passed in part to keep millions of veterans from flooding the job market after the war in 1945. The GI bill enabled hundreds of thousands of veterans, including thousands of African American and Hispanic veterans, many who were the first in their families, to attend school independent of scholarship or previous educational achievement. The GI bill was a true educational revolution that structurally changed American higher education forever (Wilson, 1987).

The second revolution in minority access to higher education began in 1964. The 1964 Civil Rights Act was built upon the late President John F. Kennedy's Vision of a Great Society. An Office of Economic Opportunities was created during this period. All the programs that are now familiar to us on campuses, such as the TRIO programs – Upward Bound, Special Services, Talent Search, Executive Order 11246 establishing Affirmative Action, and the Ronald E. McNair Post-Baccalaureate Achievement Program flowed from those earlier efforts. (TRIO's programs help low-income Americans enter college, graduate and move on to participate more fully in America's economic and social

life. These programs also help students to overcome class, social and cultural barriers to higher education.) One statistic will suffice to document that revolution, in 1965, 600,000 African Americans were in college and of which 65 % of them were attending HBCUs. By 1980, African American enrollment had doubled to 1.2 million but only 20 % were in historically Black colleges (Justiz, 1994).

In 2000, Ehlers stated what has become a widespread area of concern. The U.S. faces a serious shortfall in the number of individuals entering the fields of science, including IT and information science (IS) (Ehlers, 2000). Minority students (African Americans, Hispanics, and Native Americans) continue to be severely underrepresented. However, in the years ahead, minorities will constitute a growing proportion of the population from whom a highly skilled workforce will need to be drawn (Ehlers, 2000).

Information Technology plays an increasingly important role in the work and personal lives of all citizens (Ehlers, 2000). Between those who search aggressively for opportunities to learn more about IT and those who choose not to learn anything at all about IT, there are many who recognize the potential value of it for their everyday lives and who realize that an understanding of IT will be helpful to them. Where does the minority population fall in this range?

The greatest job growth in the United States today focuses on high-paying, high-skilled service sector jobs in such areas as: management, finance, marketing, and business services. Many of these fields demand strong, general knowledge, but not job-

specific skills. On average, these positions require about 16 years of formal education. American employers from these sectors make college degrees a prerequisite for new jobs (Carnevale and Fry, 2000). “Where did you go to college?” has replaced “Did you go to college?” as the question facing applicants in job interviews and on application forms.

As the nation’s economic base shifts toward technology, participation and achievement in IT among minority students becomes even more important. Currently, minority students, who form the most rapidly growing segment of our school-age population, are disproportionately the ones most left out of IT. Their lack of awareness of LIS careers means that both the minority student and the United States economy as a whole may suffer a serious lost opportunity. The minority students are depriving themselves of possibly fruitful career choices, including skilled technical and computer-oriented occupations, and limiting their access to currently white male-dominated, high salaried occupations. The seriousness of the current problem is compounded by the fact that minorities represent the most rapidly growing segment of the population (Ehlers, 2000). A strong desire exists to learn more about the perceptions and knowledge that minority undergraduates have of LIS careers.

Shifts in majors among minorities from the mid-1970’s to the mid-1980’s represent a movement towards fields that provide quicker entry to the labor force (Brown, 1992). Brown speculates on some of the reasons for the effort: some fields interpret better for students what one does with these majors; applied aspects of the fields in general are appealing; and the immediate employability that these fields provide is

attractive. Many faculty and academic administrators now assume that having a high starting salary and future career earning potential is the primary reason for choice of majors. Acting on this assumption, they will not make overtures or discussions about graduate school options with minorities, as they believe that students will not make the choice to defer employment. This erroneous assumption can have a depressing effect on recruitment of minorities to graduate education.

Minorities - Library and Information Science – Information Technology

Today, there are 56 ALA-accredited library programs across the U.S. and Canada (ALISE, 2001). Appendix A shows the number of students enrolled in schools for each program level distributed by gender and ethnic origin categories. Appendix B shows distribution by school. These figures show that enrollments remain predominately White (71.6 %). The 1,139 Black students represent the next largest ethnic group (5.6 %). Hispanic enrollment remains low at 2.6 %, as does Asian or Pacific Islander representation at 3.6 %. The 94 American Indian students constitute 0.5 % of total enrollment. Marketing the LIS profession to ethnic minority populations should increase the number of minority applicants to LIS schools. Black graduates accounted for 10.9 % of bachelor's degrees, 8.2 % of post-master's degrees, and 7.2 and 7.1 % respectively of doctoral and "other master's" degrees awarded in 1999-2000. The only degree percentage that deviates from this level of Black student representation is the ALA-accredited master's. Blacks account for only 4.4 % of degrees awarded particularly given the emphasis that the American Library Association has placed over the past several

decades upon recruitment of minority students, and particularly Blacks, to the profession (ALISE, 2001).

In graduate and professional fields, the greatest barriers to minority recruitment are generally assumed to appear on the supply side when defining the pool of qualified individuals. Many academic fields require advanced, specialized, quantitatively based training, and minorities may find themselves placed at a competitive disadvantage by an elementary and secondary education that inadequately prepared them for advanced college science and math courses. Although graduate admissions officials can seldom alleviate these problems directly, they do have some degree of control over other barriers that operate on the demand side and that limit the number of underrepresented minorities during the recruitment and selection process.

“Help Wanted at our Libraries” is a sign often seen today in various forms. Minority librarians are scarce, as are minority teachers. Recruitment of minorities to LIS programs is occurring but at a relatively low and inadequate level. Educational institutions at all levels have an important role to play in the proper preparation of members of society for these opportunities, especially those who have been traditionally underrepresented on the nation’s campuses. A large part of the proper preparation will require institutions to reexamine existing curricula and develop educational programming that will take into account the increasing multiculturalization of the American workforce (Reese and Hawkins, 1999).

Reese and Hawkins argue that LIS programs will have to assume a dual role in the development of this human capital. First, they will have to ensure that minorities are recruited and given access to the educational process at their institutions; and second, they must ensure that minorities are taught the skills that will allow them the opportunity to compete effectively in a diverse and highly competitive economic environment. This will be particularly significant for those professions that prepare individuals to serve patrons in a highly efficient manner. It will be imperative that future graduates enter the workplace armed with the knowledge that they will be serving a multicultural clientele and that success in serving this diverse population is contingent upon cultural sensitivity and valuing differences.

Methodology

In order to explore the complex issues that impact career path choices of minority students as they pertain to information technology and choice of LIS graduate school, the researcher determined that asking a sample of students directly could provide useful information. Each year the HBCUs in the surrounding area hold graduate and professional school fairs. These fairs present an opportunity to meet and talk with minority students who have passed through several of the links in the educational pipeline.

Survey – A survey (see Appendix C) was developed and offered to the minority students at the graduate and professional school fairs in the fall of 2001. The survey

consisted of nominal questions (yes/no) and scales with three levels of importance. The variables were chosen to obtain information from minority students at HBCUs about their perceptions of LIS schools and their familiarity with and awareness of IT. The survey was pretested and submitted to the UNC Institutional Review Board (IRB) for approval. The pretest consisted of having family members and friends of the author read the survey for comprehension and content flow. Individuals were also asked to fill out this survey, in order to obtain an estimated completion time. After approval from the IRB, the author attended graduate and professional school fairs at numerous HBCUs: Hampton University, North Carolina Central University, North Carolina Agricultural and Technical State University, Elizabeth City State University, and Norfolk State University.

Research subjects – The research subjects at the HBCUs were identified through purposive sampling. The population consisted of minority students, sophomores, juniors and rising seniors who were in their early 20s and attending an HBCU. They had chosen to attend a graduate and professional school fair on their campus, and from this action, were deemed to have aspirations of attending graduate school and pursuing a graduate degree.

Research sites – The sites where the research was conducted were graduate and professional school fairs, held in various venues on different campuses of the HBCUs. They included conference rooms inside student unions, gymnasiums, and/or campus auditoriums. The venues had tables for recruiters from many national universities. As the students visited the tables and examined the displays, they passed by the researcher's

booth, that was set up to attract students to the School of Information and Library Science at the UNC at Chapel Hill. Students were presented with information about the School and the career opportunities open to them after obtaining a Masters Degree from the Program. Students were asked to fill out the survey. Their responses were anonymous and their participation was obtained with their informed consent.

Data to be collected – The survey gathered data on various aspects of IT related to the minority student.

- Name
- Classification (class year)
- Career expectations upon graduating
- Each subject's level, knowledge, and exposure to IT
- The students' perception of their campus infrastructure and technology offerings (e.g. access to the Internet, computer labs and access to them)
- If instructors regularly incorporated technology into their course curriculum and educational process.

Participants were also asked to respond to a 20-item checklist, indicating the importance of factors when selecting and deciding on a Graduate School and how the items weigh in their applying to a Program.

Findings

Data Analysis – Statistical Package for Social Sciences (SPSS) was used to analyze the data. The responses provide a description of what members of the sample think about career possibilities in the LIS/IT fields, their awareness of the LIS degree, the field, and LIS education; and choices of graduate school, factors, and decisions.

Participants: Seventy-nine people completed the survey, 66 (83.5%) were female and 13 (16.5%) were male. Based on the observations of the author, these numbers were in proportion with the overall proportions of students attending the Fairs. The female students outnumbered the male students approximately four to one.

Table 1. **Participants in the study**

<u>Gender</u>	<u>Number</u>	<u>Percent</u>
Female	66	83.5
Male	13	16.5
Total	79	100.0

Table 2. **Current Classification of Participants**

Freshman & Sophomore	20
Junior	11
Senior	43
Graduate	4

Table 3. **Academic degree paths**

Academic Degree		
<u>Degree</u>	<u>Number</u>	<u>Percent</u>
Not responding	5	6.3
BA	26	32.9
BA & BS	1	1.3
BS	40	50.6
Masters	5	6.3
Ph.D.	2	2.5
Total	79	100.0

Table 4. **Planned Attendance to Graduate School**

<u>Response</u>	<u>Number</u>	<u>Percent</u>
No	2	2.5
Yes	77	97.5
Total	79	100.0

Table 5. **Proposed Graduate School to Attend****Graduate School Selected**

<u>Graduate Programs</u>	<u>Frequency</u>	<u>Percent</u>
Not responding	33	41.8
Biochemical	2	2.5
Broadcast Production	1	1.3
Business	1	1.3
CDS-Speech Hearing	1	1.3
Chemical Engineering	1	1.3
Computer Information Systems	1	1.3
Computer Science	4	5.1
Education	1	1.3
Engineering	1	1.3
English Literature	1	1.3
Finance	1	1.3
Forensic Psychology	1	1.3

Health Sciences	1	1.3
Information Technology	2	2.5
Information Science	1	1.3
Law	6	7.6
Master Accounting	1	1.3
Master Business Administration	4	5.1
MBA/MIS	1	1.3
Mechanical Engineering	1	1.3
Management of Information Systems	1	1.3
Microbiology	1	1.3
PhD Ed. Computer Science	1	1.3
Physicians Assistant Program	1	1.3
Physical Therapy	1	1.3
Psychology	1	1.3
Public Health	2	2.5
Public Policy Administration	1	1.3
School Counseling	1	1.3
Undecided	3	3.9
Total	79	100.0

Table 6. Interest in Career in Information Technology

<u>Response</u>	<u>Number</u>	<u>Percent</u>
Maybe	1	1.3
No	58	73.4
Yes	20	25.3
Total	79	100.0

Table 7. Awareness of Library and Information Science Field

<u>Response</u>	<u>Number</u>	<u>Percent</u>
No	62	78.5
Yes	17	21.5
Total	79	100.0

Table 8. Interest in Pursuing Master's degree in Library and Information Science

<u>Response</u>	<u>Number</u>	<u>Percent</u>
No	61	77.2
Maybe	1	1.3
Yes	17	21.5
Total	79	100.0

The following table shows factors that the 79 participants selected as either very important, important, or less important in their selection of a graduate degree program.

Table 9. Factors of Importance in Program Selection

		Very Important	Important	Less Important
		Count	Count	Count
A	Location of school with program	17	4	3
B	Geographic proximity to home	4	1	4
C	Financial aid offered by school	13	15	8
D	Cost of program	7	10	7
E	Library and computer lab resources	1	1	0
F	General reputation of the program	8	6	8
G	Teaching reputation of faculty	4	9	6
H	Research reputation of faculty	1	2	4
I	Diversity of student body	0	2	1
J	Size of classes	1	1	1
K	Flexible schedule	1	3	6
L	Availability of part-time program	1	0	1
M	Availability of night & weekend courses.	0	2	0
N	Online / distance education courses	0	1	1
O	Opportunity for professional involvement such as conferences and participation in research projects	1	3	4
P	Recommendation from a relative, alumni, current student, or employer	0	1	0
Q	Availability of dependent family care assistance	1	1	4
R	Consistency of content with career goals	12	9	13
S	Salary & job availability upon graduation			
T	Other:(please specify)	0	1	0

Implications

Many members of ethnic minority groups simply are not aware of the career opportunities available in LIS. Black librarians are growing scarce (McDowell, 2001); Black information technologists are few and far between. The library and information science profession as a whole appears to be losing ground in recruiting, at the same time that educating and retaining minorities for library

and information science professions while the ethnic makeup of the nation increases. Minority librarian recruitment efforts in the last few years have not kept pace with other professions. The American Library Association must do what the other professions, such as teaching, medicine, and engineering, have been doing for years – mount an effective initiative that will noticeably increase the numbers of people of color in the profession (Reese and Hawkins, 1999). One such initiative, The Spectrum Initiative Program, recruits applicants and award scholarships to African American, Latino/Hispanic, Asian/Pacific Islander and Native American/Alaskan Native students for graduate programs in library and information studies. Other similar national and local programs are needed.

Institutions of higher learning have become, for better or worse, the gateways to prominence, privilege, wealth, and power in American society (McDowell, 2001). Adequate preparation of minorities for public service in the twenty-first century requires that American colleges and universities structure public service educational programs to train minority administrators capable of managing a multicultural workforce and serving an ethnically diverse population.

The years before junior high school are pivotal in forming attitudes about attending college and continuing into a graduate degree program. By seventh and eighth grade, students and their families are making choices about the types of programs or courses students will pursue in late middle school and high school. There are significant differences between the basic courses a student is required to take in order to graduate and the courses most colleges and universities require for admittance. Many parents and

students do not recognize the importance of these early decisions and their lifelong implications for the student. Given that many of the factors that contribute to college attendance occur before a student reaches high school, it is important for those in higher education to collaborate with K-12 education institutions, communities and families to ensure that minority students have every opportunity to choose a college education. Providing students and parents with information about attending college and making career choices in the 12th grade is to provide it at the 12th hour- too late.

Recommendations

The national economy and our nation's classrooms are missing something. They are missing something very important. They are missing a true minority presence. The national economy and our nation's classrooms have much to gain from accepting, exposing, and enhancing diversity among today's undergraduates and tomorrow's workforce. Minorities are not only missing in part from the information technology/information science sector of the economy, but also from the educational pipeline of obtaining advanced degrees in information and library science. For many of the reasons argued and demonstrated in this study, minorities do not fully embrace technology as either an educational path and or as a viable career path. Minorities do not actively plan and pursue degrees in technology. The higher education community has an obligation to attract, educate, and graduate minorities for the information technology/information science fields, who are prepared with an adequate and knowledgeable IT/IS skill set and who can then find information and help others in their search.

With a college degree more important than ever in today's information rich and knowledge-based economy and society, it is not surprising that enrollment at the nation's colleges and universities is expected to increase tremendously over the next two decades. While many institutions have imbedded within their mission statements, proclamations, and pronouncements about multiculturalism and diversity, they are not following up with sufficient action programs. They must commit resources to the evaluation of the diverse backgrounds of prospective students or continue to increase the growing and widening disparities on our nation's campuses.

Recommendations for short and long term impact include: providing field trips to minority undergraduate students from nearby colleges to visit large predominately white campuses, developing a speakers' bureau to provide knowledgeable experts who can describe the opportunities in the LIS field and the pathways to them, providing age appropriate (middle school to baccalaureate) career exploration study materials aimed at minority students and readily available to them. Graduate departments can raise funds to offer matching grants to scholarship awardees and waive or reduce tuition where possible. Staff or alumni recruiters can be designated who are diverse by gender, age, ethnicity, sexual orientation, and library/information specialty. Departmental recruitment materials should be sure to reflect diversity. The university needs to work on providing a supportive environment for minority students. A minority advisory committee that deals specifically with minority enrollment and recruitment for each department can be appointed. LIS schools need to develop ties to the university's minority recruitment

program. Internships are important as they can provide experience and additional training. More internships dedicated to minority students need to be developed and supported. Distance learning may be another way to increase access. If this method of learning is adopted, it will be important to assure the minority target audience has access to the necessary technology with assistance in using it.

Summary and Conclusion

The data gathered from the survey provides useful results. The responses of the 79 participants in the study provide an avenue to build successful recruitment programs for minority students. The answers in Table 10 below show that the efforts of graduate schools to recruit minority students must focus in the following six areas. Financial aid offered by school, location of school with program, salary & job availability upon graduation, cost of program, general reputation of the program, and teaching reputation of faculty. Minority students are aware of factors that equate to graduate school success and graduate schools that display such factors will increase their attractiveness to minority students.

Table 10. **Combined survey results for - very important and important**

Financial aid offered by school	28
Location of school with program	21
Salary & job availability upon graduation	21
Cost of program	17
General reputation of the program	14
Teaching reputation of faculty	13
Geographic proximity to home	5
Flexible schedule	4
Opportunity for professional involvement such as conferences and participation in research projects	4
Recommendation from a relative, alumni, current student, or employer	4
Flexible schedule	3
Size of classes	2
Availability of night & weekend courses.	2
Consistency of content with career goals	2
Availability of part-time program	1
Availability of dependent family care assistance	1
Online / distance education courses	1
Availability of dependent family care assistance	1

The questions asked and addressed in this study concern minority undergraduate students and their familiarity (or lack thereof) of knowledge about and awareness of IT. Overall, the participants seemed to have a general knowledge of IT. They had access to technology on their campus and appeared to be focused on an initial career path, which did not include IT or LIS schools. The participants did not seem to be generally interested in considering a career in IT or enrolling in a LIS program. The author informed the participants that scholarships and possible tuition waiver programs existed. The author made the participants aware of the career potential with current IT industry

salary survey. Increasing familiarity and awareness of IT to minority undergraduate students needs to take place early in their education process. Familiarity with IT or location and reputation of LIS programs has the possibility to increase the number of minority undergraduate applicants but LIS and other graduate schools need to go directly where the majority of graduate school ready minority students exist, e.g., HBCU sponsored graduate and professional school fairs.

Women and minorities now have the opportunity to select newer fields of study, such as IT, IS, Biotechnology, and Bioinformatics, where the lack of history and tradition may make it easier for them to enter and advance. Developing and implementing programs that identify, attract, and support minority students who have or can attain academic greatness, starts a serious recruitment effort. Expanding informational and promotional efforts with scholarships, departmental college fairs, minority career days and fairs, and special brochures and catalogs focusing on educational opportunities for minority students, keeps minority students' dreams and hopes alive and their eyes on the prize, -- the elusive advanced degree.

Appendix A

Association of Library and Information Science Education (ALISE) Statistical Report 2001.

Enrollment (Number) by Gender and Ethnic Origin*

Fall 2000

Program	Gender	AI	AP	B	H	W	I	NA	Total
Bachelor's	Male	9	141	130	52	993	29	171	1,525
	Female	3	85	102	25	471	31	88	805
	Subtotal	12	226	232	77	1,464	60	259	2,330
ALA-Accredited Master's	Male	21	64	118	111	2,011	128	318	2,771
	Female	44	247	470	242	8,051	288	1,014	10,356
	Subtotal	65	311	588	353	10,062	416	1,332	13,127
Other Master's	Male	4	52	28	12	400	134	56	686
	Female	1	54	39	11	350	134	68	657
	Subtotal	5	106	67	23	750	268	124	1,343
Post-Master's	Male	0	5	3	5	45	36	4	98
	Female	0	2	10	1	99	22	6	140
	Subtotal	0	7	13	6	144	58	10	238
Doctoral	Male	0	7	4	5	152	119	34	321
	Female	2	14	27	5	196	100	70	414
	Subtotal	2	21	31	10	348	219	104	735
Other Graduate	Male	0	7	14	10	163	37	77	308
	Female	3	23	67	27	694	23	230	1,067
	Subtotal	3	30	81	37	857	60	307	1,375
Other Undergraduate	Male	4	10	34	9	256	8	305	626
	Female	3	15	93	10	637	10	573 ¹	1,341
	Subtotal	7	25	127	19	893	18	878	1,967
	Subtotal¹	-----	-----	-----	-----	-----	-----	-----	2,837
Total	Male	38	286	331	204	4,020	491	965	6,335
	Female	56	440	808	321	10,498	608	2,049	14,780
	Total	94	726	1,139	525	14,518	1,099	3,014	21,115
	Total¹	-----	-----	-----	-----	-----	-----	-----	21,985

- When interpreting the data from this table, please note that not all schools that offered degrees and certificates reported ethnic origin data. Refer to the tables that follow for each program level for specific information on which schools were not included.

1. This subtotal includes 870 "Other Undergraduate" students that were not reported in Table II-4 but who were reported in other tables under total students. Gender differentiation was not reported.

Appendix B

ALA-Accredited Master's Fall 2000

[illegible]

[illegible]

	Female	-----	-----	-----	-----	-----	2	112	114
	Subtotal	-----	-----	-----	-----	-----	3	149	152
Wisc. Madison	Male	0	1	1	0	40	2	2	46
	Female	1	1	4	1	112	7	3	129
	Subtotal	1	2	5	1	152	9	5	175
Wisc. Milwaukee	Male	1	0	3	0	43	1	0	48
	Female	1	2	5	2	157	2	0	169
	Subtotal	2	2	8	2	200	3	0	217
Total (56 schools)	Male	21	64	118	111	2,011	128	318	2,771
	Female	44	247	470	242	8,051	288	1,014	10,356
	Total	65	311	588	353	10,062	416	1,332	13,127
Mean (n = 52) ¹	Male	0.4	1.2	2.3	2.1	38.7	2.3 (n=56)		49.5 (n=56)
	Female	0.8	4.7	9.0	4.6	154.8	5.1 (n=56)		184.9 (n=56)
	Total	1.2	6.0	11.3	6.8	193.5	7.4 (n=56)		234.4 (n=56)

1. Excludes British Columbia, McGill, Toronto and Western Ontario. Canadian schools were not required to report ethnic data. Includes data provided by Alberta, Dalhousie and Montréal.

- AI American Indian or Alaskan Native -- a person having origin in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition.
- AP Asian or Pacific Islander -- a person having origin in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, Japan, Korea, the Philippine Islands, Samoa, and Taiwan. The Indian subcontinent includes the countries of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Sikkim, and Bhutan.
- B Black, not of Hispanic Origin -- a person having origin in any of the black racial groups of Africa.
- H Hispanic -- a person of Cuban, Central or South American, Mexican, Puerto Rican, or other Spanish culture or origin, regardless of race. Only those persons from Central and South American countries who are of Spanish origin, descent, or culture should be included in this category. Persons from Brazil, Guyana, Surinam, or Trinidad, for example, would be classified according to their race and would not necessarily be included in the Hispanic category. In addition, the category does not include persons from Portugal, who would be classified according to race.
- W White, not of Hispanic origin -- a person having origin in any of the original peoples of Europe, North America, or the Middle East.
- I International students -- All students who are not U. S. (or Canadian, for Canadian schools) citizens, permanent residents, or landed immigrants.
- NA Information not available. Please use this category sparingly. Where at all possible, report ethnicity.

The letters IT used in this survey refer to computer and information technologies.

1. What is your gender?
☐ Female ☐ Male
2. What is your race? (optional)
☐ Black ☐ White ☐ Hispanic ☐ Asian ☐ American Indian ☐ Other: _____
3. What is your current classification?
☐ Senior ☐ Sophomore
☐ Junior ☐ Other: _____
4. What academic degree are you completing or have completed?
☐ BA ☐ Masters ☐ Other: _____
☐ BS ☐ Ph.D.
 Subject Area _____
5. Are you planning to attend Graduate School?
☐ Yes ☐ No
 If so, what discipline? _____
6. Are you currently considering a career in IT?
☐ Yes ☐ No
 If so, in what area? _____
7. Are you interested in pursuing a Master's degree in Information/Library Science?
☐ Yes ☐ No
8. Are you aware of Information and Library Science degree programs?
☐ Yes ☐ No
9. How often do you use a computer on your campus?
☐ Several times a day ☐ At least once a day ☐ Weekly day ☐ Less often
10. Have you used IT in ANY classes you have taken in the last 2 years?
☐ Yes ☐ No
 If so, which of the following: ☐ E-mail ☐ Online web databases ☐ Listservs
☐ Online course material ☐ Discussion forums ☐ Other: _____
11. Has your IT knowledge increased because of your educational experience at your current institution?
☐ Yes ☐ No
12. Do you have easy access to computers on your campus?
☐ Yes ☐ No
13. May I contact you in the future to ask about your Graduate school selection?
☐ Yes ☐ No
 If so, please supply the following information:
 Name _____
 e-mail address _____

14. Please indicate how important each of the following factors would be to your decision to apply to a Graduate Degree program.

		Very Important	Important	Less Important
A	Location of school with program			
B	Geographic proximity to home			
C	Financial aid offered by school			
D	Cost of program			
E	Library and computer lab resources			
F	General reputation of the program			
G	Teaching reputation of faculty			
H	Research reputation of faculty			
I	Diversity of student body			
J	Size of classes			
K	Flexible schedule			
L	Availability of part-time program			
M	Availability of night & weekend courses			
N	Online / distance education courses			
O	Opportunity for professional involvement such as conferences and participation in research projects			
P	Recommendation from a relative, alumni, current student, or employer			
Q	Availability of dependent family care assistance			
R	Consistency of content with career goals			
S	Salary & job availability upon graduation			
T	Other:			

Which of the above factors are **MOST IMPORTANT** to you?

Write the letters corresponding to the 3 most important factors: _____

15. If you were to enroll in a Library and Information Science program, how would you be most likely to meet the costs of that program?

Check any that apply.

- | | |
|--|---|
| <input type="checkbox"/> Fellowship or Scholarship | <input type="checkbox"/> Full-time job |
| <input type="checkbox"/> Graduate assistantship | <input type="checkbox"/> Personal or family support |
| <input type="checkbox"/> Loans | <input type="checkbox"/> Part-time job |
| <input type="checkbox"/> Employer support | <input type="checkbox"/> Other : _____ |

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